WHAT IS CLAIMED:

1. A method for collecting and separating whole blood into one or more components comprising:

providing a disposable blood separation fluid circuit adapted to cooperate with a reusable separation controller, the fluid circuit including a fluid flow path for communication with a blood source, an initial collection chamber in fluid communication with the fluid flow path and a blood processing chamber in fluid communication with the initial collection container;

connecting the fluid flow path to a blood source; collecting a quantity of whole blood from the source in the initial collection container;

disconnecting the source from the disposable fluid circuit;

mounting the disposable fluid circuit in association with the reusable controller; and

processing the collected blood through the disposable fluid circuit assembly and the processing chamber to separate it into the desired components.

- 2. The method of claim 1 in which the mounting occurs after the source is disconnected from the fluid circuit.
- 3. The method of claim 1 in which the initial collection chamber includes a quantity of anticoagulant.
- 4. The method of claim 1 in which about 200-750 ml of whole blood are collected in the initial collection chamber.
- 5. The method of claim 1 in which about 500 ml of whole blood are collected in the initial collection chamber.
- 6. The method of claim 5 in which a unit of whole blood is collected in the initial collection chamber.
- 7. The method of claim 1 including connecting additional collection chambers of whole blood to the fluid flow path for processing through the fluid circuit.
- 8. The method of claim 1 in which the reusable device is not in the immediate vicinity of the source during the collecting or processing.

- 9. The method of claim 1 in which the reusable device is a different location than where the collecting takes place.
- 10. The method of claim 1 in which the blood source is a human.
- 11. The method of claim 7 in which the blood in the initial collection chamber is processed sequentially.
- 12. The method of claim 7 in which the blood in the initial collection chamber is processed simultaneously.
- 13. The method of claim 1 including pooling together blood from other blood sources and flowing the pooled blood into the flow path for processing through the fluid circuit.
- 14. The method of claim 1 in which about 405 550 ml of whole blood are collected in the initial collection chamber.
- 15. A disposable blood processing fluid circuit assembly comprising:
- a blood processing chamber and a plurality of containers and associated fluid flow tubing adapted for processing blood while in fluid communication with a blood source;

said blood processing assembly further including an initial collection container for receiving a quantity of whole blood from the source for processing after communication with the blood source has ceased.

- 16. The assembly of claim 15 wherein the initial collection container has a volume sufficient to hold a unit of whole blood.
- 17. The assembly of claim 15 in which the initial collection container has a volume between about 200 ml and 750 ml.
- 18. The assembly of claim 15 further comprising a quantity of antiocoagulant in the initial collection container.